

1 panels.

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3 REMARKS

4 Reexamination of this application is respectfully requested.

5 The indefiniteness rejections of the first and second paragraphs of the office action are
6 believed to have been resolved by amendments to the claims, specifically by amending claim 28 to
7 eliminate the multi-paragraph form.

8 Claims 40-43, 46, 49 and 54 were rejected under 35 U.S.C. 102(b) as being anticipated by
9 Mills. Claims 1-4, 9-12, 15, 19, 28, 44 and 53 were rejected under 35 U.S.C. 103(a) as being
10 unpatentable over Mills in view of Vandersteel. Claims 47 and 51 were rejected under 35 U.S.C.
11 103(a) as being unpatentable over Mills in view of Rowe. Claim 48 was rejected under 35 U.S.C.
12 103(a) as being unpatentable over Mills in view of Matheson. Claims 25, 26, 32, 38, 39 and 50 were
13 rejected under 35 U.S.C. 103(a) as being unpatentable over Levendahl in view of Vandersteel.
14 Claims 30 and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over Levendahl in
15 view of Vandersteel as applied to claim 25 above, and further in view of Karafiath et al.. Claim 45
16 was rejected under 35 U.S.C. 103(a) as being unpatentable over Mills in view of Karafiath et al., and
17 claims 44 and 52 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mills in view of
18 Berne. Finally, claims 6-8, 13, 14, 16 and 36 were objected to as being dependent on a rejected base
19 claim, but would be allowable if rewritten in independent form including all of the limitations of the
20 base claim and any intervening claims.

21 ON THE ALLOWANCE OF ALL REMAINING CLAIMS

22 Claim 6 is allowable by examiner as combining claims 6, 4 and 1, and this new independent
23 claim is listed as new independent claim 55. Claims 1, 4 and 6 have been canceled. Claims 2 and
24 3 were rejected and are hereby canceled. Claim 7 is allowable by examiner as dependent on new
25 claim 55. Claim 8 is allowable by examiner as dependent on allowable 7. Claim 9 to 12 were
26 rejected and are hereby canceled. Claim 13 is allowable by examiner as dependent on new claim 55.
27 Claim 14 likewise is allowable as dependent on new claim 55.

Regarding claim 15, previously dependent on claim 1, it was rejected on Mills with Vandersteel's foil. Applicant points out that Mills' only underwater configuration, namely his Fig. 1, is qualitatively and hydrodynamically different from Calderon's invention, for example, his Fig. 5A and B which are scaled. Mills is qualitative separate from Calderon as follows:

- a) Mills' submersible has a bow height in profile necessarily equal to his stern beam in planview. Mills' Fig. 2 is only for Mills' surface embodiment and does not cause rejection of a subsurface craft.
- b) The lateral borders of Mills in plan view necessarily have shoulder and midbody curvatures, both surface and subsurface.

Accordingly, claim 15 has been cancelled. However, a new independent claim 57 has been entered reciting all the limitations of claim 1, further amended by "submerged height in side view adjacent said forward end substantially less than submerged beam adjacent stern" (claim's fourth paragraph, opposite to Mills) and "a waterplane with right and left surfaces which are substantially free of shoulder and midbody curvature" (claim's third paragraph, opposite of Mills), as are evident in Calderon's Figs. 5 A to 5 D. Applicant respectfully submits that originally submitted claim 15, now claim 57, is allowable over Mills, and different in kind also over Mills in view of Vandersteel. Likewise, the limitations of amended claim 15 are also attached to amended claim 25 and presented in independent form as new claim 58 and therefore should be allowable.

Claim 16 is allowable by examiner in independent form and is submitted herein as new independent claim 59. Claims 17 and 18 have been canceled.

Claim 19 was dependent on claims 4 and 1. Claim 19 was rejected on Mills with the Vandersteel fin. The rejection on Mills is not applicable because Mills does not show a "second volume above water level..... which is approximately a long triangle (in profile view)". Mills Fig 2 show nothing above waterplane. If an attempt is made to interpret Mills' body of his Fig. 2, where is his water level? In applicant's opinion, Mills lack of the water level will result in Mills not teaching to applicant's invention as claimed in claim 19. Nonetheless, claim 19 has been amended to specify "and a short height above said waterplane located in a midbody region of said elongated

1 body” (last statement on claim 60) which is inexistent and impossible for Mills, and claim 19, now
2 as 60, is thus believed to be allowable. Claim 60 includes all the details of claim 1. A similar
3 restriction over Mills has been added to claim 25 and this is entered as new claim 61. This is entered
4 in independent form as new claim 60, including the details of claim 1, and in independent form as
5 new claim 61 based on previously submitted claim 25. Claims 20-24 have been canceled.

6 Claim 25 was rejected on US Levendahl + Vandersteel fin. Applicant respectfully does not
7 agree with this rejection for the following reasons.

8 Levendahl specifies a ship. Ships are not submersibles. It is different in kind from
9 applicant’s invention. The volume of Levedahl’s hull above waterplane, shown in his Fig. 5, is
10 much larger than the displacement volume below waterplane, by a factor estimated greater than 4
11 (can be confirmed by computer study if need be). In consequence, it would be impossible for a
12 person skilled in the art to submerge Levendahls’ body with lateral wings such as taught by
13 Vandersteel, or anyone else. Moreover, a front view of Levendahl requires flat-sided bulky towers;
14 and step discontinuities in its deck in side view, proper for a ship. But these features would impede
15 sustained subsurface motion. Moreover, the forward hull of Levendahl is designed to prevent
16 submergence and therefore his ship cannot operate subsurface. No person skilled in the art would
17 attempt to operate Levendahls shape, regardless of size, as a subsurface craft. Accordingly, it is
18 honestly, fairly, and clearly shown that Levendahl or Vandersteel on Levendahl cannot impede claim
19 25, as the following language analysis of 25 ascertains: A ship , or the shape of a ship, is not “a
20 surface and subsurface operational watercraft.” Also, Levendahls’ sides at water plane level inherent
21 in his Fig. 5 at DWL are conventional with a maximum beam at station near midbody with a water
22 beam at stern of 75% of maximum beam. This is qualitatively different and opposite to claim 25’s
23 language “a generally triangular water engaging section with generally straight side walls
24 extending divergently from said bow to said stern”. Clearly Levendahl’s sides are convergent from
25 midbody to stern. In view of the above, Vandersteel becomes not significant.

26 Although the language of claim 25 is considered sufficient, it is being reinforced by adding
27 a restriction that “the water beam at stern be substantially larger than water beam at midbody in a
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1 surface operational condition”, clearly impossible for Levendahl’s surface hull forms. Moreover,
2 in profile Levendahl's ship has a hull portion above water level, which extends forward and above
3 the bow at waterplane in all his drawings (see his Figs. 7 and 8 specially), as most ships have. This
4 is contrary to applicant’s teaching, according to which body shape above waterplane is slanted to rear
5 of waterplane’s bow. Claim 25 has been amended with the above restrictions and is considered
6 allowable. In view of the arguments presented, and the amendments introduced to claim 25. It is
7 respectfully submitted that amended claim 25 is now allowable.

8 Claim 26 is dependent on amended claim 25 and is therefore allowable. Claim 27 is
9 canceled. Claim 28 dependent on 41 was rejected on Mills with Vandersteel. Claim 41 was rejected
10 on Mills. Claim 28 should be allowable because of the allowability of amended claim 41. (see later
11 in this discussion). Claim 29 was canceled.

12 Claim 30 and 31 dependent on 25, were rejected on Levendahl+ Vandersteel +Karafiath. But
13 as shown already, claim 25 has been amended to place it in allowable form and Vandersteel does not
14 teach a trailing edge flap and in respect to rejections of claim 30 on Karafiath, claim 30 specifies a
15 movable flep, which Karafiath is not, and claim 30 also specifies, as part of it flap motion, “said flap
16 being deflected with the trailing edge upwards”, which is contrary to the Karafiath flap being fixed
17 downwards in all of its drawings (i.e. Fig 3,4,5,6,7 and 12) it being noted that Fig. 11 of Karafiath
18 is a tank model of discreet flap positions which are obviously fixed and therefore not movable. And
19 in respect to rejections of claim 31 on Karafiath, it is not relevant, as Karafiath does not pertain to
20 depth control by change and power of a subsurface craft, which claim 31 does. In consequence, 30
21 and 31 should be allowable.

22 Claim 32 dependent on claim 25 was rejected on Levendahl’s ship and the Vandersteel fin.
23 This rejection is not applicable in respect to the subsurface craft of claim 25 which in Claim 32 has
24 flooded compartments when submerged. Flooded compartments are not shown in either Levendahl
25 or Vandersteel. Claim 32 is now presented in independent form as claim 62. Claims 33, 34, 35 are
26 canceled. Claim 36 dependent on claim 25 was allowable by examiner’s indication as an
27 independent claim. It is entered as independent claim 56. Claim 37 is canceled.

1 Claim 38, dependent on claim 25 covering a subsurface craft, was rejected by Levendahl's
2 surface ship with Vandersteel's fins. No person skilled in the art could possibly consider making
3 that ship form submersible, as was discussed on the allowability of amended claim 25. Because the
4 language of 38 can be further improved to clearly differ from the art, it has been amended to include:
5 "when operating at surface a triangular water engaging section in planview with a forward end and
6 generally straight sides free of shoulder curvatures (contrary to Leveldahl) extending divergently
7 from said bow to said stern (contrary to Levendahl) with a stern beam substantially larger than a
8 midbody beam (contrary to Levendahl), and an approximately triangular planform in side view ...
9 extending from a location adjacent said forward end to a location adjacent said stern beam
10 substantially free of step discontinuities therebetween." (contrary to Levendahl). This claim applies
11 clearly on applicant's Fig. 5 and other, and clearly impossible for Levendahl and is allowable if 38
12 + 25 are presented in independent form, as new Claim 63.

13 Claim 39, formerly dependent on 38, is now made dependent on 63. Claim 40 was rejected
14 on Mills. But the claim 40 language includes the following
15 a forward end wedge shaped in planview with narrow end forward.... (reject on Mills)
16 A rearward end wedge shaped in profile with narrow end rearward...(reject on Mills)
17 in side view a total height adjacent forward end substantially less than total planform width adjacent
18 said rearward end....(impossible on Mills, see below)

19 Applicant would agree with examiner's rejection if Fig. 2 of Mills were a subsurface craft.
20 But Mills' Fig. 2 is a surface craft and Mills' only subsurface craft is his Fig. 1, in which his forward
21 height in profile is necessarily equal to his rearward end, as evident in Mills' cross sections in his
22 Fig. 1, seen in the attached copy of his Fig. 1. Mills teaches in his column 1, lines 10-15: "Fig. 1
23 illustrates the construction embodied in devices for use entirely immersed in water or surrounded
24 by air. Fig. 2 illustrates a form when but two sides is to be subjected to the action of resisting fluid
25 medium. Fig. 3 shows for purpose of explanation etc." Therefore examiner's rejection on
26 applicant's invention of a subsurface craft as claimed in claim 40, based on Mills, is in violation of
27 Mill's own teaching to examiner. A person skilled in the art following Mills' teaching would use
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1 Mills' Fig. 1 for subsurface craft, and not Mills' Fig. 2. Applicant respectfully affirms that claim 40,
2 as it stands cannot be validly rejected by Mills.

3 Nevertheless, to further affirm the allowance of claim 40, it has been amended to more
4 clearly read on applicant's Fig. 5 by reciting that "the total height in profile of said midbody region
5 being substantially larger than said total height adjacent said forward end", clearly impossible for
6 Mills' Fig.1. Applicant respectfully affirms amended claim 40 is now allowable.

7 Claim 41 is similar to claim 40 and was rejected on Mills. Applicant affirms claim 41 is
8 allowable over Mills for the same reason as claim 40. Nevertheless, to further the distinction
9 between applicant's Fig. 5 and Mills' Figs. 1 and 2, claim 41 has been amended to read "with the
10 principal lateral surfaces of said watercraft being generally free of twist". Since twist is of the
11 essence of Mills, claim 41 as amended is allowable.

12 Claim 42 is superfluous in view of amended 40 and 41. Claim 42 is therefore canceled.
13 Claim 43 specifies that "the included angle in profile of said rearward end... is substantially greater
14 than the included angle in planview of said forward end". Rejection on Mills is respectfully not
15 applicable. Fig. 2 of Mills shows included angle in profile of 11° at rearward end and in forward end
16 in planview 22°, as shown in attached Mills Fig. 2. And in Mills' Fig. 1, the included angles in
17 profile and planview are necessarily equal by symmetry of Mills' Fig. 2. The unique importance of
18 applicant's angles are indicated in applicant's pg. 16 and in Fig. 5a. Applicant respectfully affirms
19 that in view of analysis of Mills, claim 43 is allowable as is, because the claimed front angle in
20 planview is substantially less than the rear angle in side view, clearly opposite to Mills. Claim 44
21 is dependent on amended claim 40 considered allowable, and therefore 44 is also allowable. Claim
22 45 is also dependent on amended allowable claim 40 and is considered now allowable.

23 Claim 46, similar to claim 40, is allowable over Mills in view of analysis of Mills in
24 discussion on 40. To further affirm applicant's Fig. 5, claim 46 has been amended to have a
25 midbody region and a midbody height in side view which is substantially larger than the height in
26 side view adjacent said forward end. Amended claim 46 is therefore considered allowable.

27 Claim 47 dependent on 43 was rejected on Mills in view of Rowe. The allowability of 43
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1 over Mills has already been clearly established. The allowability over Rowe on the parachute is
2 enhanced by specifying "said decent rate being no larger than approximately twice a high subsurface
3 speed of said watercraft", clearly beyond Rowe, basis for which is taken from the applicant's
4 specification, specifically pg. 23, middle of second paragraph. Claims 48 and 49 are dependent on
5 41, which has been amended to make it allowable over Mills. Therefore, claims 48 and 49 are
6 believed to be allowable.

7 Claim 50 is dependent on 25, which has been amended and placed in condition for allowance.
8 Therefore, it is believed that claim 50 is also allowable. To further clarify its adherence to applicants
9 Fig. 5 claim 50 has been amended to read, "generally free of step discontinuities".

10 Claim 51 dependent on 41 was rejected on Mills and Rowe. It is allowable on the same
11 argument applied to claim 47, subject to the following amendment on 51 "at a high underwater speed
12 no less than approximately half said decent rate" also as per specs pg. 23 middle of second
13 paragraph. Claim 51 is now allowable. Claim 52 dependent on 44 and 40, should be allowable upon
14 allowability of amended 40.

15 Claim 53 was rejected on Mills. To overcome this rejection, claim 53 is now required to
16 have generally continuous surfaces "generally free of twist extending ... etc", including the sides of
17 hull which is impossible for Mills. Therefore, it is believed that claim 53 is now allowable. Claim
18 54 dependent on 40 has been amended to correct an error; it pertains to shape above water as in Fig.
19 5 and should be allowable upon allowance of amended claim 40.

20 The prior review has shown the allowability of all claims up to claim 63. For examiner's
21 convenience, given the length of this amendment, the above review is summarized as follows:

- 22 ▶ Claims 1, 2, 3, 4, 5 and 6 are canceled.
- 23 ▶ Dependent claim 6 is rewritten in independent form as claim 55 which was allowed by
24 examiner.
- 25 ▶ Dependent claims 7 and 8 are now dependent on allowable claim 55.
- 26 ▶ Claims 9, 10, 11 and 12 are canceled.
- 27 ▶ Dependent claims 13 and 14 now depend on allowable claim 55.

- 1 ▶ Dependent claim 15, dependent on claim 1, is cancelled. Instead two new independent are
- 2 entered: Claim 57 based on original claim 1, and claim 58 based on original claim 25.
- 3 ▶ Dependent claim 16 was allowed by examiner in independent form, now claim 59.
- 4 ▶ Claims 17 and 18 are canceled.
- 5 ▶ Dependent claim 19, dependent on claims 4+1 has been amended and presented in
- 6 independent form as claim 60 framed with text of claim 4 and of claim 1, and claim 61
- 7 framed with text of claim 25.
- 8 ▶ Claims 20, 21, 22, 23 and 24 are canceled.
- 9 ▶ Independent claim 25 is amended and remains.
- 10 ▶ Dependent claim 26 remains, depends on amended claim 25.
- 11 ▶ Dependent claim 27 is canceled.
- 12 ▶ Dependent claims 30 and 31 remains dependent on amended claim 25.
- 13 ▶ Dependent claim 32 depended on claim 25. It is now submitted as independent claim 62
- 14 framed with text of claim 25.
- 15 ▶ Claim 33, 34 and 35 are canceled.
- 16 ▶ Dependent claim 36, dependent on claim 25, was indicated allowable by examiner if
- 17 independent, and is now claim 56.
- 18 ▶ Claim 37 is canceled.
- 19 ▶ Dependent claim 38 was dependent on claim 25. It is amended and entered as new claim 63
- 20 framed on claim 25.
- 21 ▶ Independent claim 40 is amended and remains.
- 22 ▶ Independent claim 41 is amended and remains.
- 23 ▶ Claim 42 is canceled.
- 24 ▶ Independent claim 43 is amended and remains.
- 25 ▶ Dependent claims 44 and 45 depend on claim 40 and remain.
- 26 ▶ Independent claim 46 is amended and remains.
- 27 ▶ Dependent claim 47 depends on claim 43, is amended, and remains.

- 1 ▶ Dependent claims 48 and 49 are dependent on amended claim 41 and remain.
- 2 ▶ Dependent claim 50 is dependent on amended claim 25 and remains.
- 3 ▶ Dependent claim 51 is dependent on amended claim 41, is amended also, and remains.
- 4 ▶ Dependent claim 52 is dependent on claim 44 and amended claim 40 and remains.
- 5 ▶ Independent claim 53 is amended and remains.
- 6 ▶ Dependent claim 54, dependent on amended claim 40 is amended and remains.
- 7 ▶ In the review above, the origin of new independent claims 55,56, 57, 58, 59, 60, 61, 62 and
- 8 63 is specified. All of these claims are related to claims in prior amendments.
- 9 ▶ New dependent claim 64 is dependent on claim 63.
- 10 ▶ New independent claim 65 is directed specifically to applicants' Fig. 3, and also Fig 5. Fig
- 11 3 is isometric and will be used to demonstrate allowable of claim 65 as follows:

12 Triangular waterplane: apex 32, base 34, sides 31 and 33

13 Triangular right side: base 33 apex 35

14 Triangular left side: base 31 apex 31

15 Triangular aft side: base 34 apex 31

16 Lateral surface joining above waterplane line 35 to 32.

17 It is submitted therefore that new Claim 65 is allowable over any and all the art.

- 18 ▶ Dependent claims 66 and 67 are dependent on claim 65 and thus are believed to be allowable
- 19 with new claim 65.

20 It is believed that the present amendments add no new matter and place the claims in

21 condition for allowance over the cited prior art as is the custom in response to final rejection.

22 Applicant further would like to thank the examiner for his time and efforts in communicating the

23 deficiencies in the originally filed application and in the subsequent communications, and has

24 attempted to correct all outstanding problems in this amendment.

25 Finally, in consideration of the many efforts which the examiner has undertaken in this and


26 prior patent applications of the inventor, he is pleased to enclosed, at last, a photo of a sophisticated

27 TH surface/subsurface boat currently with water, jet power, now under construction. This was made

1 financially possible, in part, because of the diligent efforts of the examiner in this and prior patent
2 applications, and his efforts are appreciated.

3 Applicant is mailing this amendment after expiration of the three month response period but
4 within the third month's extension of time permitted by 37 C.F.R. § 1.136 and accompanied by the
5 fee set forth in 37 C.F.R. § 1.17(a). This application is thus believed to be in condition for allowance
6 of all claims remaining herein, and such action is respectfully requested.

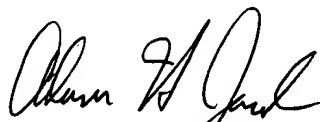
7 Respectfully submitted,

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15 CERTIFICATE OF MAILING

16 I hereby certify that this Amendment for a SUBMERSIBLE HULL AND HYDROFIELD,
17 Serial N^o 09/677,583, was mailed by first class mail, postage prepaid, to the Mail Stop Non-Fee
18 Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 11th
19 day of July, 2005, which is the first day not a Saturday, Sunday or Federal Holiday following July
20 10, 2005.

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